

LEARNING POTENTIAL WITH iPad

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ABSTRACT

Mobile touch-screen technologies, also referred to as iPad technologies, have introduced a new generation of educational tools that afford creative use and instant access to a wealth of online resources. They have been touted as 'revolutionary' devices that hold great potential for transforming learning. One of the chief benefits of mobile devices is that they enable learning anywhere, anytime. In deploying mobile devices, the teacher is no longer at the centre of the learning process and the instructional time can transcend. The portability of mobile devices provides users with access to a broader and more flexible source of learning materials than what is offered in current classroom settings. One of the iPad devices such as apps are undoubtedly a source of fun and entertainment but more recently educators believe they have significant educational potential for providing content and may support students learning. There is emerging evidence to suggest that apps have a significant potential to support the learning process. However, to date, there is a paucity of research to confirm that assertions about iPad technologies are actualised in real classroom settings. This evaluation seeks to provide evidence-based information about the practical and technical implications of deploying iPads in classroom environments and their subsequent impact on teaching and learning.

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INTRODUCTION

In 1966, Clements defined children with learning disabilities as: "children who are median, close to median or higher than median in regard to general intelligence, but have difficulties or special difficulties in learning or behaviour. Rate of these difficulties ranges

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from low to severe. The main difficulty is in perception, language, memory, controlling, attention, dynamic actions and so on and it may result in defect of different gene, disability in metabolism, brain impact or other malady and phenomenon which occur for a long time, affecting growth and completion of central nerve system". There are different categories of learning disabilities in children, having brain impacts. There are selected terms for them: "special insufficient learning or learning disabilities" (Babapourkheyroodin & Gharamaleki, 2001). Learning disabilities are divided into three main groups; *dyslexia*, *dysgraphia* and *dyscalculia*. Learning disability in mathematics is dyscalculia. Children given to disorder in mathematics have severe difficulties in perception of space relations field (Saifnaraghi & Naderi, 1995). Students with dyscalculia do not remember main facts of numbers and they forget formula and procedures in problem solving easily. They cannot read problems correctly and have challenge in conceptual symbols such as time and directions. They punctuate with pencil and draw cycles posthaste until can calculate via symbols. It seems that they cannot remember computation strategies for problem solving. Therefore, they cannot remember basic mathematics facts automatically (Hasselbring et al., 1988). They tend to compute with their fingers and comprehend slowly.

Difficulties of students do not end with academic deuce, cost wastage and possibilities, but mathematics programmes are responsible in development and popularization of mathematical concepts, creation of motivation, upbringing of creativity, application and bringing of relation in thoughts of students. Nonetheless, it was observed that traditional mathematics education methods cannot be used to teach public students and in particular teaching disabled students in several consecutive years. The methods were tiresome and involved tedious practices. So it is necessary to change communicating method to make learning a pleasurable experience to students.

ASSISTIVE TECHNOLOGY

Teaching disabled students often requires items that differ from what schools produce normally. Most disabled students require contextual changes of subjects, tasks, teaching methods and test. Because of special difficulties of disabled students, it is not sufficient to use one teaching strategy only, but collection and combination of strategies. Mathematics education can include reality experiences and analysis of tasks (Yaveri et al., 2006). With development in technologies, researchers in special education fields have tried to use technology in the curriculum of dyscalculia students to promote their skills in learning efficiently. Disabled students cannot remember context learned previously, because their working and long-term memory is weak. Using assistive technology for students with special needs, such as software and hardware helps such students to remember prerequisite and needful skills for learning new skills in mathematics (Miller & Hudson, 2007). Also, with technology, mathematics education can help disabled students make their special features (Symington & Stranger, 2000). Assistive technology relieves and recovers learning disabilities and related disabilities. This kind of technology removes disabilities of these students and increases communication between teachers and students (Berhman, 1994). Fields of assistive technology include strategies that are famous such as: special access technology, adaptive technology, augmentative technology, special education technology and computer instruction.

One of the assistive technologies tool for learning math for those with math learning disability is the iPad. No other tablet offers as many learning apps. The iPad, are fundamentally altering the paradigm of traditional education and blurring the lines between assistive technology and instructional technology. The iPad's characteristics make it an appropriate tool for classroom instruction, including price, physical size, processor speed, storage capacity, wifi connectivity, mobility, built in camera, accessibility features, and an abundance of available applications (apps). Specifically, it is the accessibility features and availability of apps that make it especially suitable for students with disabilities. The specialized features offer opportunities for innovative instructional interventions because they easily allow the differentiation of instruction in a manner that could foster academic skills and promote independence (Malley et al., 2013).

iPAD – WHAT IS IT?

Physically and functionally, iPad tablet falls between the smart phone and the laptop. Applications designed for this hybrid niche typically offer visual content that is more interactive than on a cell phone screen, while allowing navigation with taps, finger swipes, and pinch zooms not feasible on a typical laptop or desktop. Many iPad applications focus on presenting content such as music, movies, magazines, newspapers, websites, games, or e-books. Apps allow the device to be used as an e-reader but with more interactive features than other e-texts, redefining what a textbook can be and do. iPads can also serve as part of a student response system and for numerous other purposes. iPads have longer battery life than most laptops, and educational applications designed for the iPad often incorporate audio, video, animation, and illustrations. The iPad apps frequently make use of the touch screen for navigation and exploration (<http://www.creativecommons.org>).

iPAD – HOW DOES IT WORK?

The iPad is well-suited for the consumption of information, with a crisp visual display and built-in wireless connectivity that facilitates easy download of the hundreds of thousands of applications available from the iTunes store. But many applications offer more than just consumption, providing interaction and exploration as they take advantage of the touch screen interface, web access, and large-tablet display size. A wide range of applications support teaching and learning, including many apps developed by institutions and third-party developers. For individual study, students might find flash card apps like Cram as a rich and interactive learning opportunity. Alternatively, they might turn the iPad into a graphing calculator by downloading the Pi83 application or challenge themselves with vocabulary word games like Word Warp. In a classroom setting, polling applications such as e-clicker can collect, collate, and present student responses during lectures or discussions. Or the iPad might function as a backchannel tool using cloud services like Twitter or Google Moderator (<http://www.creativecommons.org>).

iPAD – WHY IS IT SIGNIFICANT?

As a single device that is smaller than a laptop, the iPad combines robust computational functionality with a screen large enough to serve as a legitimate replacement

for printed textbooks and other course materials, with the added benefits of interactivity. The iPad also provides assistive tools, including an audio reader for those with visual impairments and support for closed-captioned content to accommodate those with hearing difficulties. Some iPad applications can design media. In recent years, technological innovation has focused on providing smart phones with computing ability. At the same time, the applications designed for iPad desktop and laptop computers indicate that the features and tools developed for mobile devices have value for a wider range of hardware. The success of the iPad has been instrumental in triggering a migration of mobile-style applications towards laptop and desktop computers (<http://www.creativecommons.org/licenses/by-nc-nd/3.0/educause.edu/eli>).

iPAD IN TEACHING AND LEARNING

The iPads need to be considered as an educational tool that can support learning. They have the potential to afford new opportunities for learning if accompanied by student-centred pedagogies and authentic learning experiences. Given the preponderance of apps available in the iTunes App Store, teachers need to make critical and informed decisions when selecting apps.

- An app selection rubric that provides teachers with explicit criteria against which to judge the effectiveness of an app can be developed and disseminated to teachers.
- The development of a dynamic, online app database to provide teachers with current information about educational apps and their relevance for learning could be established.
- A collaborative environment where teachers can comment on each app's educational viability and perhaps suggest how it has been used in a learning context may be helpful.

While this evaluation illuminated the effectiveness of instructive, gamesbased apps for promoting students' recall of facts, teachers are encouraged to source content-creation 'productivity' apps. Instructive, drill-and-practice game apps can be used sparingly to aid students' recall of facts requiring rote memorisation such as spelling patterns and rules, multiplication tables, addition and subtraction facts. Content-creation apps are characterised by their more open ended design and it is postulated that they foster higher levels of thinking and engagement, than apps with an instructive pedagogical design. Teachers can also consider using iTunes and iBooks app to seek educational resources and digital materials rather than relying solely on apps from the iTunes App Store (www.clic.nsw.edu.au).

The deployment of mobile devices in the classroom demands the overt teaching of 21st century skills, as presently advocated (Goodwin, 2012).

- The explicit teaching of critical literacy and visual literacy skills is paramount given the periods of time students spend using digital media and their exposure to digital images.

Students need to develop a comprehensive understanding of copyright regulations, particularly as they pertain to generating and publishing digital content.

USING iPad TO TEACH AND LEARN MATHEMATICS

iPads and similar mobile devices are being purchased by many schools in the hope they will address the needs of 21st century students. Integration of technology is now an essential aspect of classrooms, with current curriculum documents expressing explicit expectations that ICTs are integrated into the teaching and learning of mathematics. Literature around teaching practice and the use of ICT suggests the implementation of new technologies has potentially changed teaching and learning radically, providing opportunities for a shift of focus from the mechanics of action to a more problem-solving based approach (Resnick, 2006).

The introduction of iPads as teaching and learning tools can also potentially removes some of the existing barriers to successful ICT integration. The distinct affordances offered by iPads when compared to the use of laptop and desktop computers include their affordability and ubiquitous access, mobility, ease of use, opportunities for more flexible learning spaces and more opportunities for students to author their own work rather than simply consuming the work of others (Ireland & Woollerton, 2010; Melhuish & Fallon, 2010; Kiger, Herro & Prunty, 2012).

In studies (Attard, 2013; Attard & Curry, 2012), teachers found it more challenging to use iPads in interesting ways when teaching mathematics, in contrast to their use in other subjects. Often teachers tend to rely on apps that are specifically designed for mathematics, but focus on a drill and practice approach that simply replaces the repetition of a standard worksheet or textbook page with some added animation and colour. Sometimes the apps that are used in mathematics lessons are based on games, with little or no opportunity for students to develop their problem solving skills or being able to reflect on their learning.

IMPLICATIONS FOR TEACHING AND LEARNING

Teachers and school decision makers need to think carefully about the technical and logistical implications of using iPads in the classroom before purchasing the devices. Designed primarily as a single consumer device, there are practical and technical implications for deploying the devices in a school environment. The paramount factors that need to be considered are: wireless access and infrastructure required; establishment and maintenance of iTunes accounts for each device; and methods of exporting and sharing student work. A key finding from this trial relates to the critical role of the teacher in ensuring that the potential benefits of the iPad are actualised in a classroom setting. The affordances of the iPad are mediated by the teacher's philosophical beliefs about learning and the subsequent pedagogical approaches they implement with the iPad. Regardless of the many attributes of iPad, unless accompanied by sound pedagogical practice its potential benefits may not be realised. Teachers need to spend time considering how to implement the iPad in their learning environment and class context to yield maximum results. The iPad may be embedded into authentic and student-centered tasks that allow the students to utilise many of the iPads features. Touch- screen technology suits all learning styles visual, auditory and kinesthetic. The iPad allows the classroom tasks to be continued and completed at home. Even Parents are encouraged to communicate and become involved in their child's learning.

This also illuminated the need for students to develop media literacy skills. Critical and visual literacy skills are important skills of the 21st century. There is a dire need for explicit instruction on critical and visual literacy skills as students using iPads in conjunction with other screen devices are subject to a preponderance of visual images. They need to develop critical skills to enable them to discern any incorrect information and process graphics with ease. This is not only essential for using touch devices, but any form of screen-based technology as emerging research indicates that today's learners process graphics before text and have a preference for learning with images.

CONCLUSION

Today's students are digital natives who are easily engaged and motivated when technology, like the iPad, is integrated into instruction. All apps and strategies will focus on using iPads to enhance learning in ways that will motivate students. As educators of 21st century learners, educators are challenged to prepare students for college and workplace environments that will include technology. Our students have never known a time without computers, the Internet, tech tools, and now, iPads. Students have a passion for utilizing the infinite resources technology on daily life, researchers in education fields have tried to use technology especially iPad in the curriculum of students in order to promote their skills in learning efficiently. In addition, it explores students' and teachers' perceptions and use of mobile devices and provides a systematic analysis and classification of educational apps. It seeks to contribute to the emerging body of literature on the effective implementation of iPad technologies in classroom settings.

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